

The Road to InRoads "Athens"

Joe Waxmonsky, PE
InRoads Product Manager





InRoads "Athens" Project

"Athens"

- Interoperability
- Integration
- Infrastructure



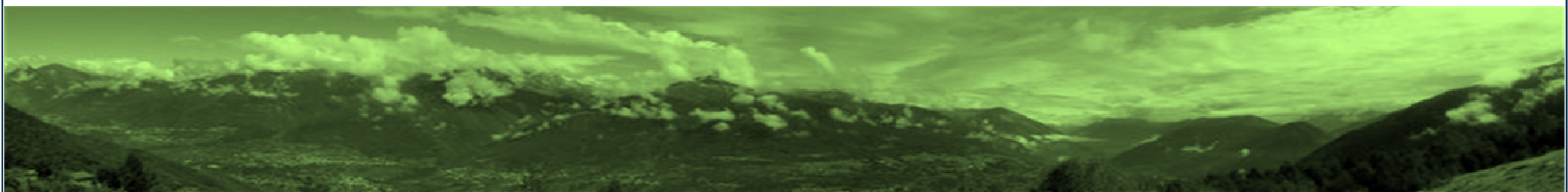
"Athens is the integrated, interoperable software portfolio for infrastructure professionals."



Bentley[®]
Sustaining Infrastructure



Infrastructure: the Interface Between People and our Planet



Bentley: *Sustaining* Infrastructure



Our mission is to provide solutions to Design – Build – Operate the world's infrastructure with the goal of:

- Sustaining our society
- Sustaining the environment
- Sustaining the profession



SOLUTIONS

PRODUCTS

LEARNING

SUPPORT & SERVICES

CORPORATE

COMMUNITIES



Sustaining Infrastructure

Comprehensive software solutions for the infrastructure lifecycle: from buildings to bridges, transit to utilities, clean energy to clean water, Bentley is *Sustaining* Infrastructure.

Communities

Connect and Communicate with 7,000+ Members of the World's Infrastructure Community.

[JOIN NOW!](#)

See Pics from the Latest BE User Group Meeting in Belgium.

See the Effects of an Earthquake on a Bentley Office.

Forums | Wiki | Blogs [More](#)

Bentley in the News

August/September 2008 - Amsterdam - Urban Islands, Vector 1 Media

August/September 2008 - Interview with Dr. Sanjay Dahasahashra Member Secretary, MJP, Mumbai

Seminars | Events | [More News](#)

Project Showcase



Learn how Engevix Used ProjectWise to Assemble a Virtual Team for its Power Plant Project



Read About FIGG's Rebuilding of the I-35W Bridge, a Project Completed Three Months Early

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Read the Latest Issue of BE Magazine



Video: Create a Data-rich Virtual Plant Model



Bentley InRoads V8i



InRoads "Athens" Time Frame

- Target Date Q4 '08
- Simultaneous Software Portfolio Release

*The "Athens" software portfolio is "the most eagerly anticipated portfolio software update since the V8 Generation began."
Bhupinder Singh, Senior VP Bentley Software*



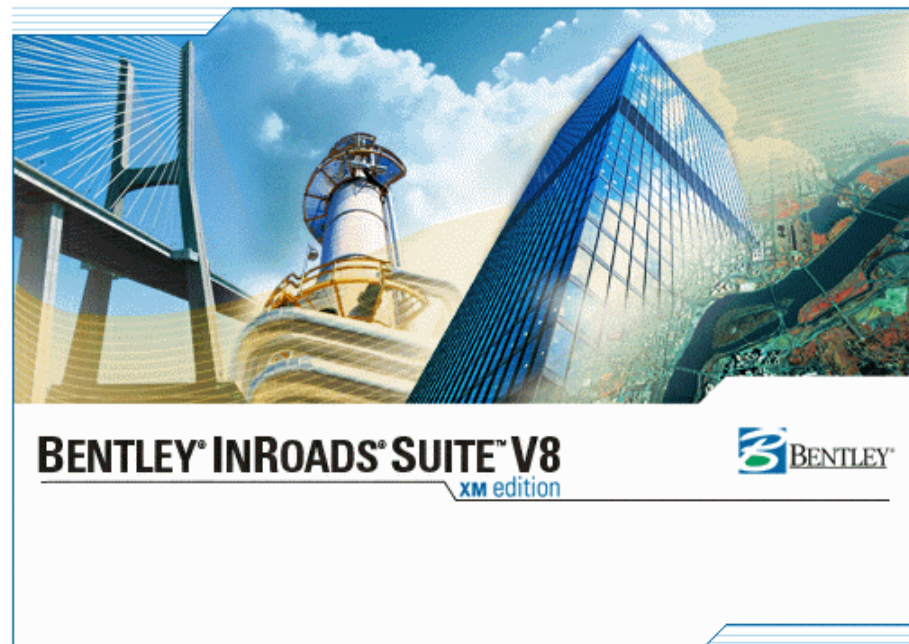
InRoads Release Update

BENTLEY SELECT

MAXIMIZING PRODUCTIVITY OF SOFTWARE, PEOPLE AND INFORMATION



- Continued Investment
- InRoads XM SP3
 - Scheduled Q1 2009



Summary

- Over 200 Enhancements
- 250 Defects Fixed
- Delivery Includes:
 - Civil Track GPS
 - Civil Accudraw
 - Roundabouts
- InRoads Readme

Online Information *

- [InRoads Group Information](#)
- [Bentley Rail Track Information](#)
- [Bentley Online Documentation](#)
- [Technical Information](#)
- [BE Communities](#)
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Local Information

Bentley InRoads Group V8i

on 08.11.05

• [Introduction](#)

• [What is New](#)

• [Requirements](#)

• [FAQ](#)

• [Product Support](#)

• [Copyright](#)

Online Information*

- [InRoads Group Information](#)
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* - requires access to the Internet

Powerful regression analysis combined with the unique element design capability of InRoads Group gives users the power to resolve complex design geometry efficiently and accurately in accordance with unique engineering design criteria. A unique Roadway Designer allows interactive design and review in a synchronized viewing environment.

Along with roads and highways, InRoads Group applications are put to use on a host of engineering projects, including railways, municipal and public works projects, commercial and industrial sites, levees, canals and rivers, pipelines, environmental projects and more. Users can improve productivity and accuracy with focused yet integrated applications.

The InRoads Group runs seamlessly with Bentley's project collaboration software servers, enabling users to achieve a fully managed environment.

ProjectWise gives InRoads Group users the security to store, distribute, track, and manage InRoads Group data across unlimited users, offices, project team members, and locations. Employing InRoads Group and ProjectWise with Digital InterPlot for plotting and publishing, users reap the benefits of a world-class solution for project collaboration.

Last updated September 8, 2008

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v08.11.05

InRoads "Athens" Readme on Select

Product	Download	Version	Date	FileSize	Certified On
<input type="checkbox"/> MicroStation V8 XM Edition	CD				

Windows 2000, Windows

Bentley.com - Product Description - Microsoft Internet Explorer provided by Bentley Systems

- Ray traced soft shadows
- Support for distributed rendering
- Support for ProjectWise Schedule

For more information on MicroStation V8 XM Edition (v08.09.04.xx) [click here](#)

Important Information for MicroStation V8 XM Edition (v08.09.04.xx)

MicroStation V8 XM Edition Software Prerequisite

MicroStation V8 XM Edition v08.09.04.xx requires the following software to be installed before installing MicroStation V8 XM Edition v08.09.04.xx. You need to install the following software before installing MicroStation V8 XM Edition v08.09.04.xx if you have not already installed a previous version of the software.

- Local Information
 - What is New & Changed
 - Requirements
 - QuickInstall Guide
 - ReadMe
 - FAQ
 - Product Activation
 - Copyright
- Online Information*
 - MicroStation Information
 - Bentley Online Documentation
 - Technical Information
 - Bentley/MicroStation Discussion Groups
 - Bentley Library
 - Bentley SELECT

What is New & Changed in MicroStation

v08.09.04

New & Changed

The following outline identifies new features and enhancements in this release of MicroStation V8 XM Edition.

For more information about what's new, see "What's New?" > "New in SELECT Update #2" in the online help document. To open the help document in MicroStation choose Help > Contents.

- AutoCAD Interoperability
 - AutoCAD 2008 DWG support
 - Configuration variables for all settings in DWG Open/Save As dialog
- Conceptual Modeling Tools Enhancements
 - Model Solid Feature Tool

“Peaceful Coexistence”

Mike’s 2007 definition:

1. The ability for multiple versions of InRoads to reside on the same machine and work peacefully without interfering with the other version(s).
2. Bottom line: The ability for you to begin moving to the next version of InRoads and keep using the previous version for your “projects in the pipeline”.

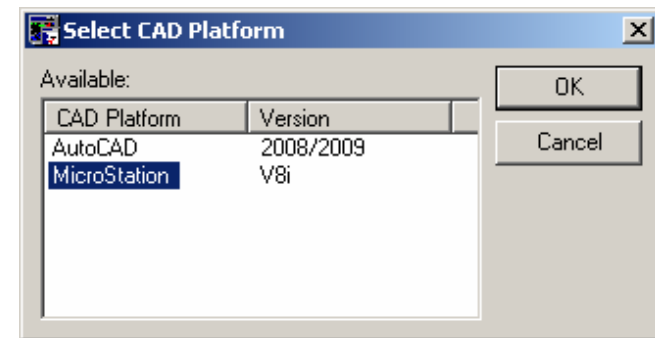
“Peaceful Coexistence”

Mike's ~~2007~~ 2008 definition:

1. The ability for multiple versions of ~~InRoads~~ **Bentley Civil** software to reside on the same machine and work peacefully without interfering with the other version(s).
2. Bottom line: The ability for you to begin moving to the next version of ~~InRoads~~ **Bentley Software** and keep using the previous version for your “projects in the pipeline”.

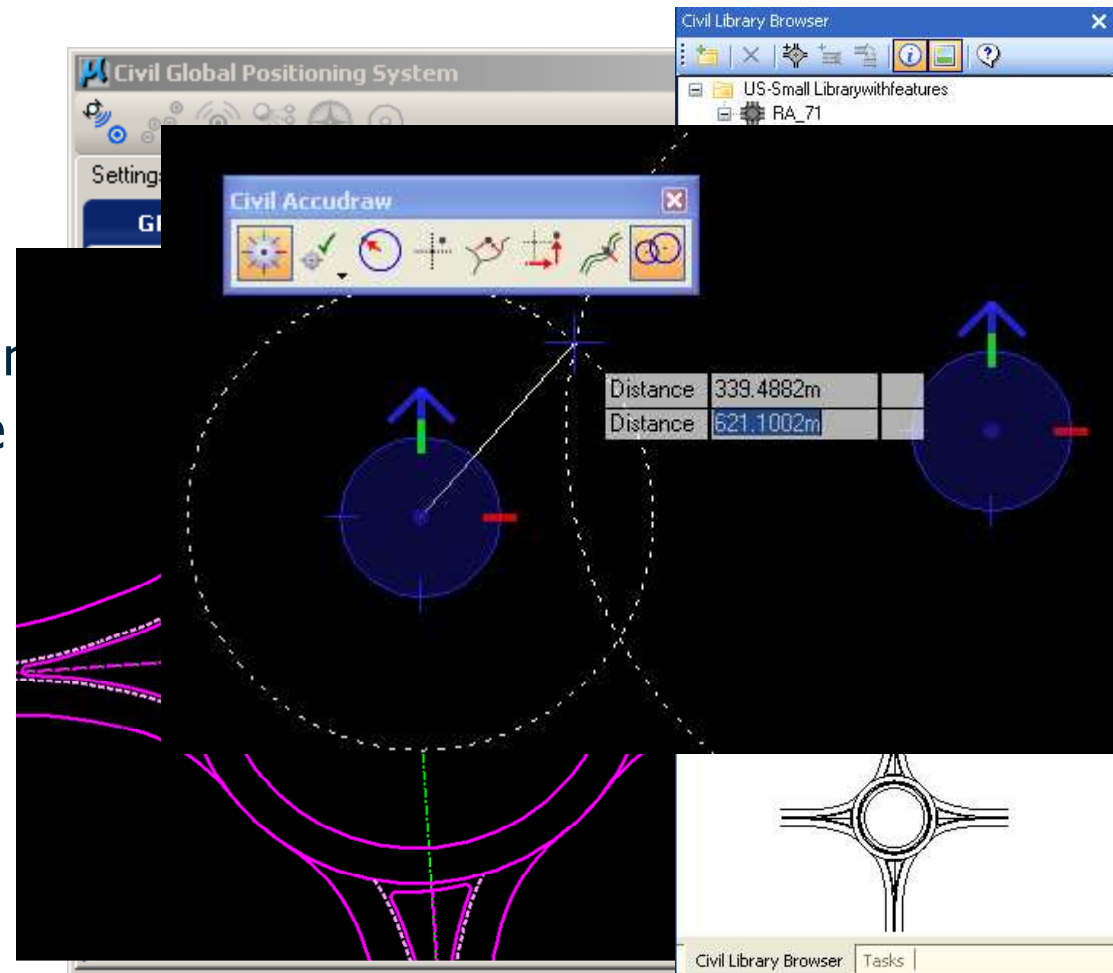
InRoads "Athens" General Enhancements

- CAD Platforms Supported:
 - MicroStation "Athens"
 - AutoCad 2008/2009
- Support for ProjectWise "Athens"
**With MicroStation "Athens"
- DTM Memory Allocation
 - Larger & Faster
 - Use of 3GB Switch



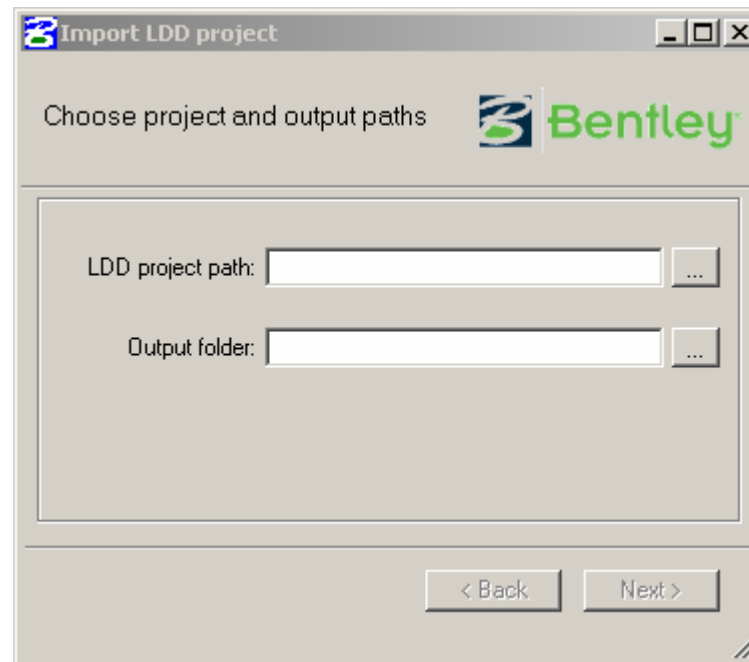
Civil Enhancements

- Roundabouts
- Civil Accudraw
 - Distance /Direction
 - Distance/Distance
 - Station/Offset
- Civil Track GPS



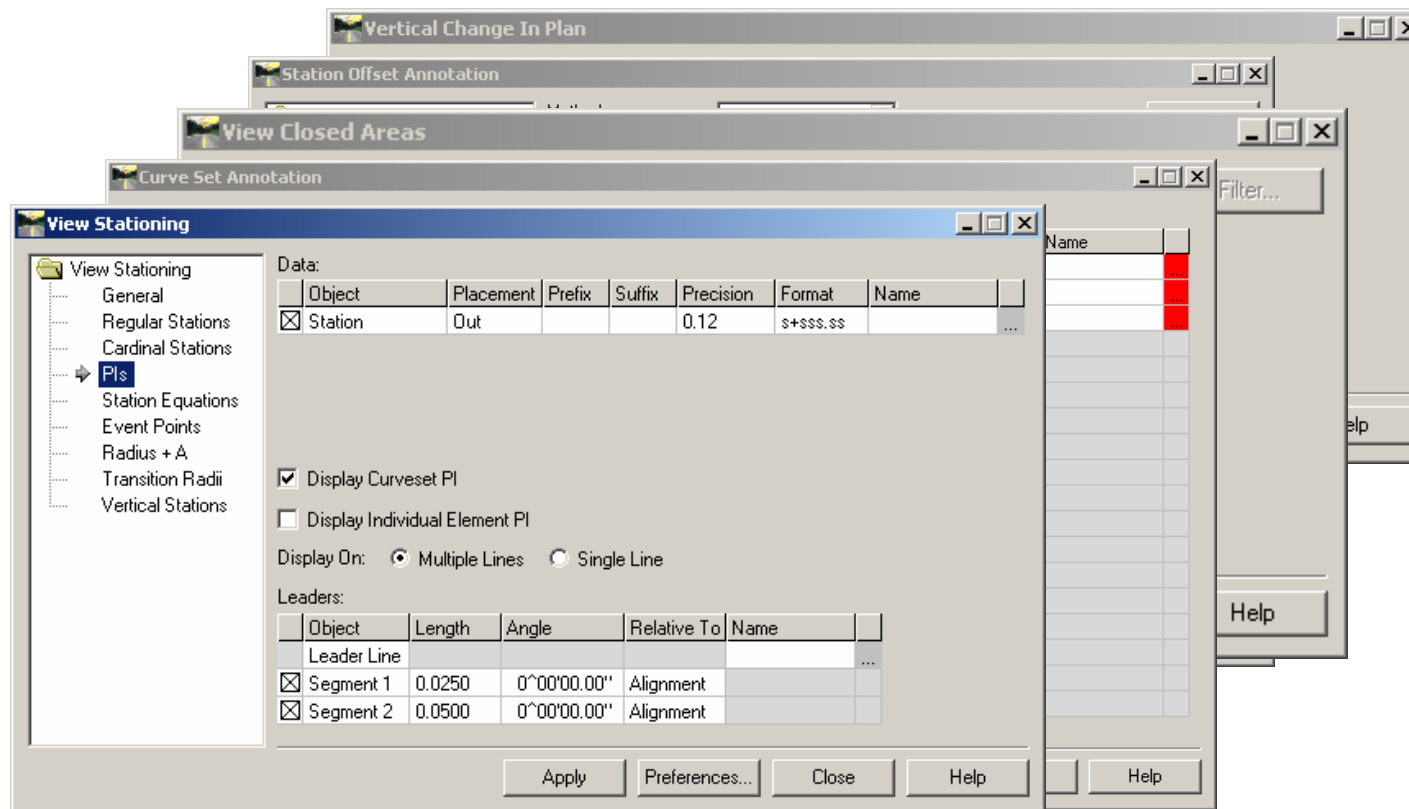
InRoads "Athens"

- LDD Converter
 - C:\Program Files\Bentley\InRoads Group V8.11\bin\ldd\UILauncher.exe



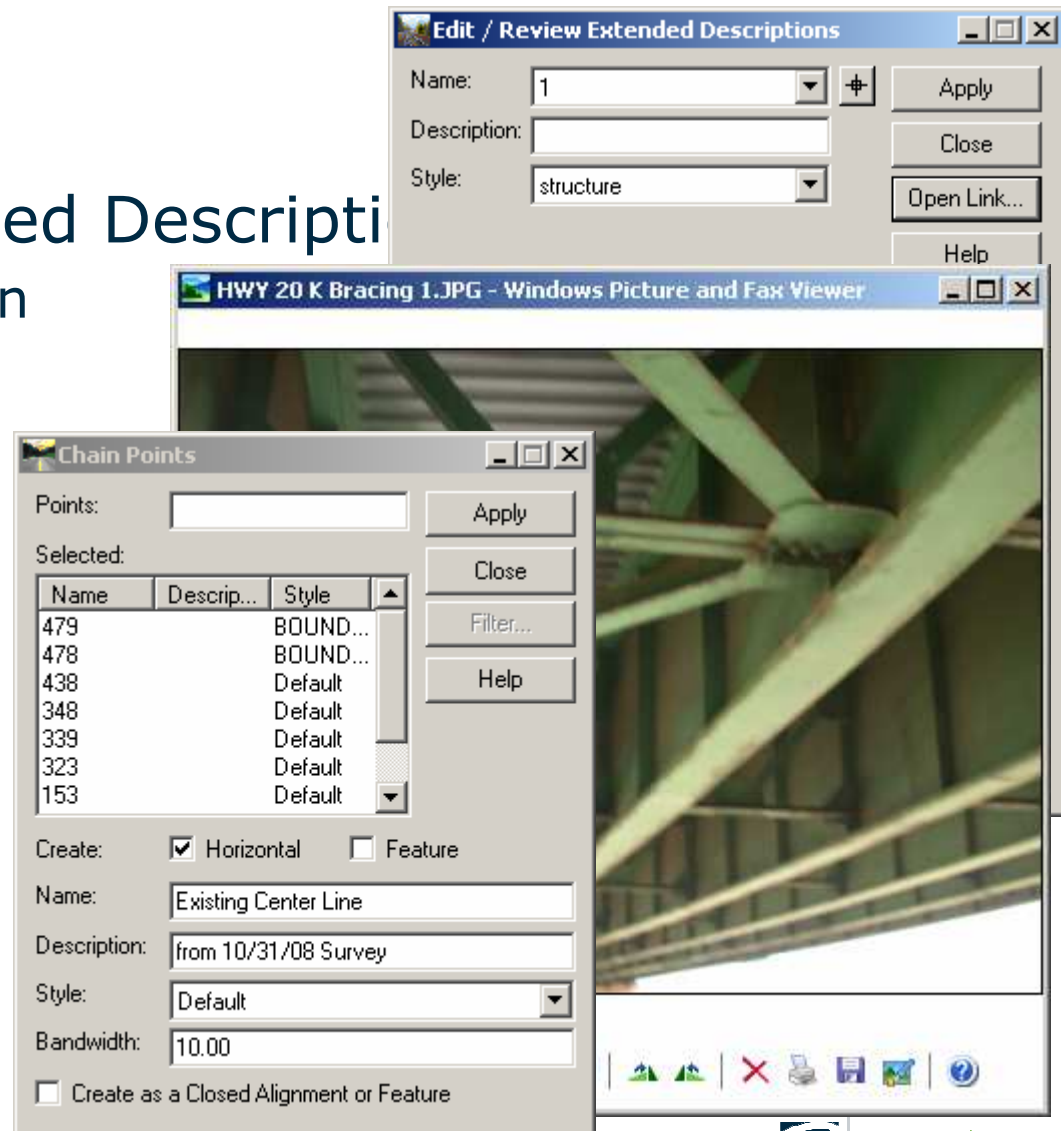
Geometry Enhancements

- User Interface Improvements



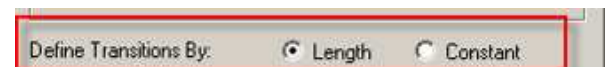
Geometry

- Cogo Points Extended Descripti
 - Extended Description
 - Linked File
- Chain Points
 - Horizontals
 - Features



Geometry Functionality

- Enhanced Compound Curve Sets
 - Horizontal Curve Set > Insert PI
 - Horizontal Curve Set > Move PI
 - Horizontal Curve Set > Delete PI
 - Horizontal Curve Set > Define Curve Set
 - Horizontal Element > Edit
 - Horizontal Element > Move
- Tools>Options>Geometry>Transitions
 - Removed from tools
- Vertical Alignment Healing



Geometry Functionality

- Cogo Audit Trail
- Traverse Edit>Maintain
- Simultaneous Tracking
- Inverse Direction
- Design Checks
- Add Floating Curve
- LandXML Geometry Allocation
- A lot more.....

*** Modified by Richard.Bradshaw on 1/9/2008 11:14:35 AM

Direction Traverse

Mode: Add to Cogo Buffer

			-347.408	325.708	0.000
	S 90°00'00.0" W	100.000			
12			-347.408	225.708	0.000
	Inverse Direction				
	N 26°45'09.4" E	158.726			
			-520.035	145.874	0.000
	Inverse Direction				
	N 70°48'53.4" E	103.218			
			-378.299	217.323	0.000
	Inverse Direction				
	N 70°48'53.4" E	103.218			
			-378.299	217.323	0.000
	Inverse Direction				
	N 22°11'47.5" W	96.166			
			-344.379	314.809	0.000
			-344.379	314.809	0.000
			-255.340	278.479	0.000

Dynamics Settings and Intervals

Station:

Elevation:



What's New in InRoads Geometry

Robert Nice
Wednesday 8:00 to 8:50am

Survey

- Empty Fieldbook
- Random Points as Separate Features
- Single Point Curve Control
- Extended Description to

Description	Alpha	Numeric
Point of Curvature	PC	3
Point of Tangency	PT	4
Exclude from Triangulation	DNC	5
Random	RND	6
Rectangle	RECT	None
Close Rectangle	CLSRECT	7
Nontangent Curve	NT	8
Join Point	JPT	None
Join Nearest Code	JNC	None
Distance	DIST	None
Template	TMPL	None
Cross Section	XS	None
Add to Adjustment Set	ADJ	None
Extend Arc	EXTARC	None
Single Point Arc	SPC	None

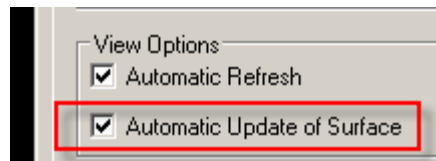
The image shows a software interface with several dialog boxes. The 'Survey Data to Geometry' dialog box is at the top right, with fields for Project Name (job123), Description (Use Attributes), Curve Stroking (Horizontal and Vertical), Duplicate Names (Replace selected), and an Empty Project checkbox. Below it is the 'Edit / Review Extended Descriptions' dialog box, showing a list of attributes: Attribute Name, Attribute Value, Code, and Note. A black box highlights a cyan arc with labels 'EP 5' and 'SPC'. The 'Edit Style' dialog box is also visible, showing a Name field with 'CP'.

Survey

- Survey Style Filter>Point Range
- Survey Data to Geometry. Multi-coded points that are in multiple chains can now be sent to the geometry project creating only one point for all chains and using said point in all chains
- Survey Graphics DNT Tag

Survey

- Support Trimble DC Codes: B6, 69CC, 69TM, 90, 91, and 92
- Translators > SDMS Translator has been improved
- Automatic Update of Surface

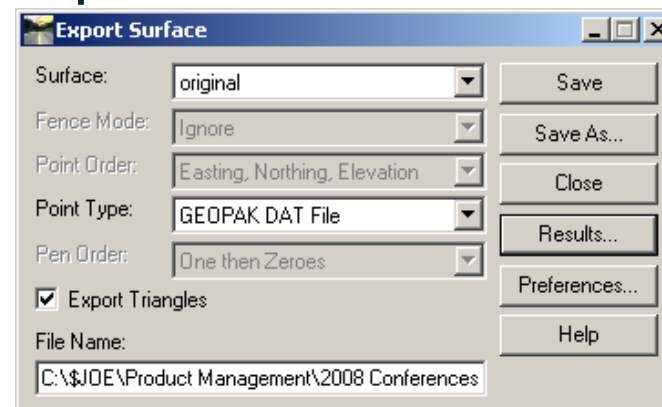
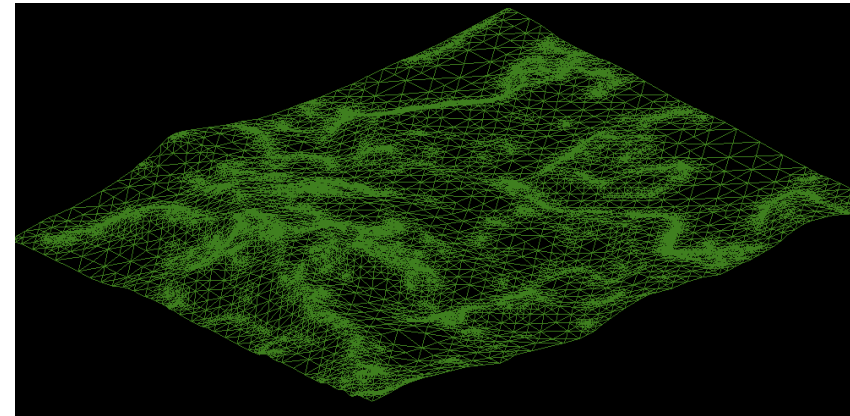


Survey- Variable Manager

- **Use Spaces in Surface Description**
 - Use spaces instead of commas when separating attribute values in the surface description of features created through Survey > Survey Data to Surface
- **Swap Trimble DC Coordinates**
 - Swap the northing and easting coordinate columns during a Trimble DC import
- **Trimble DC Import**
 - During the Trimble DC import, ignore all 13TS lines. These lines are timestamps and by default are imported as notes. Also, ignore certain 13NM notes as defined by Maine DOT

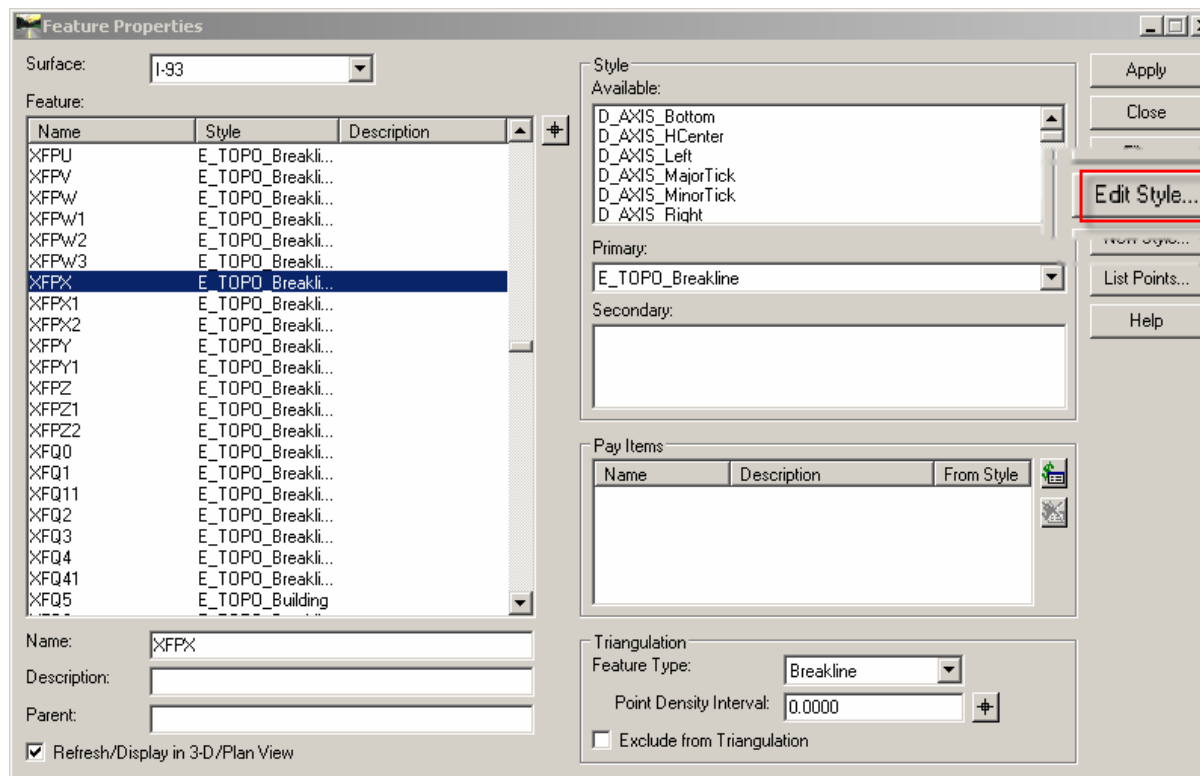
Surface Enhancements

- Performance
- Import Enhancements
 - From Graphics
 - LAS Format
 - InRoads Site & InRoads Site Suite
 - Available in AutoCad
- Export>Surface to Geopak DAT file



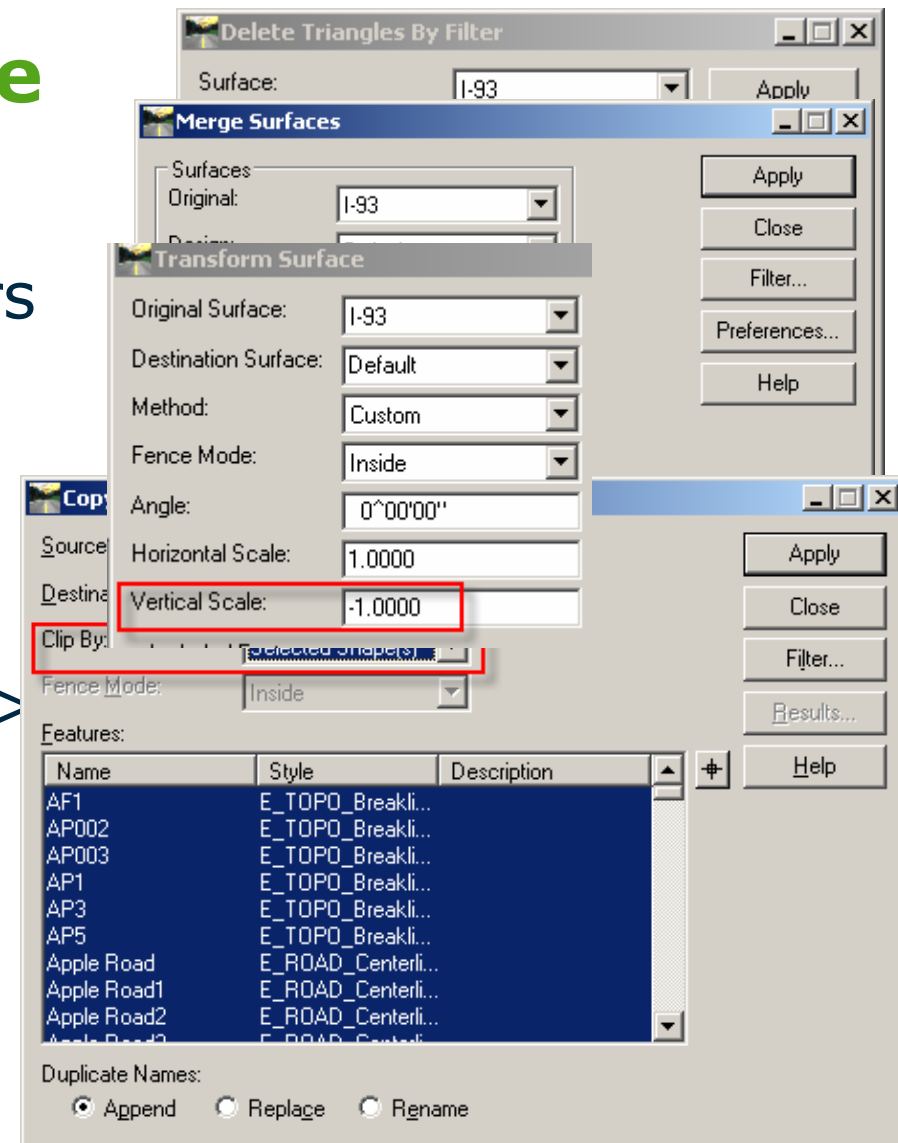
Surface

- Feature Properties
 - Edit Style Button
 - List will Hold position



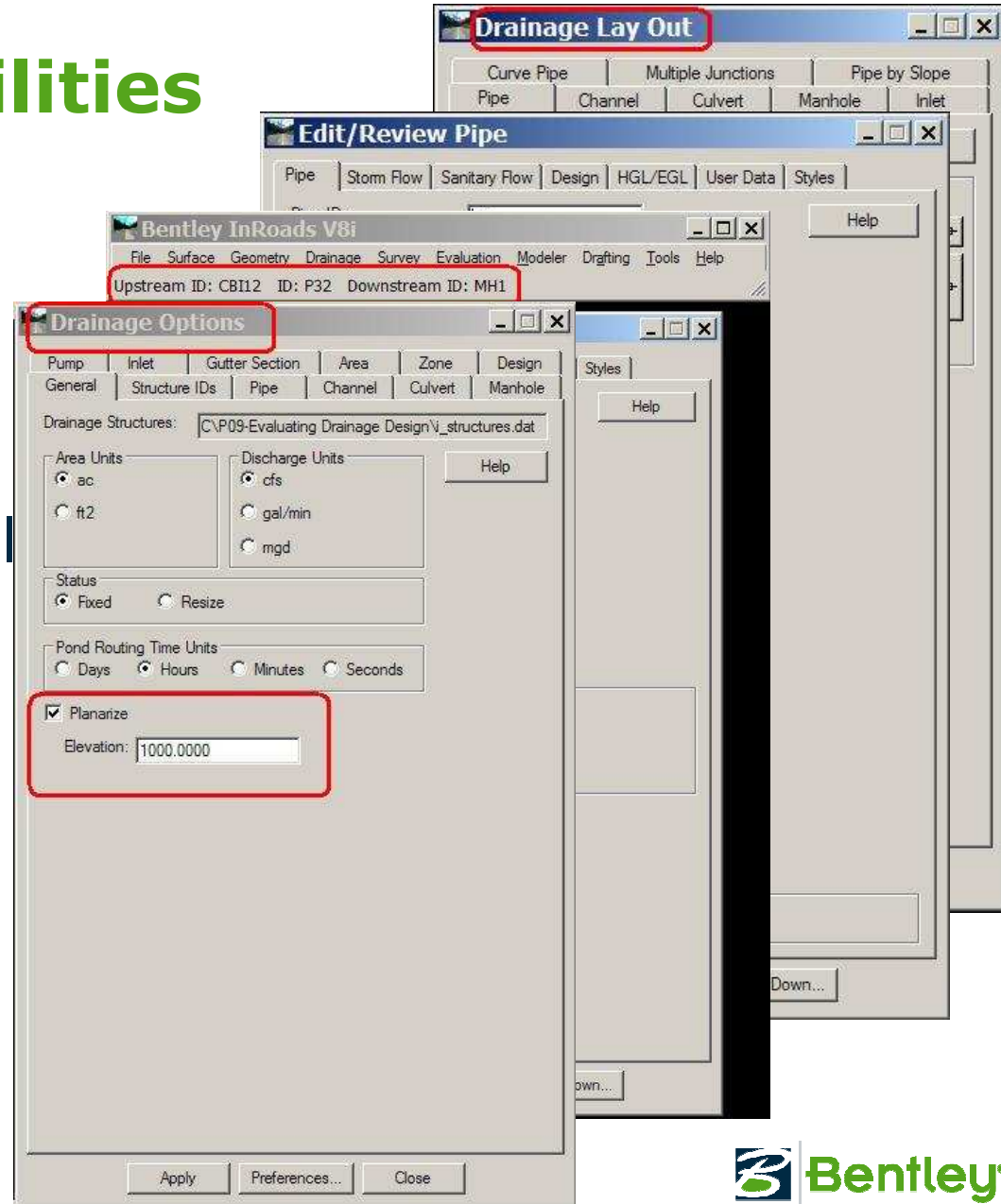
Surface > Edit Surface

- Delete Triangle By Filters
- Transform Surface
 - Accepts Negative Value
- Merge Selected Areas
- Copy Portion of Surface >
 - Clip Features



Drainage and Utilities

- Graphical Picks
 - Lay Out
 - Edit/Review
- Structure ID's Visible
- Planarize Option



Drainage and Utilities

- Report on Station & Offset
 - Pipe
 - Culvert
 - Channel

Results

Drainage Reports

Element Type: Pipe

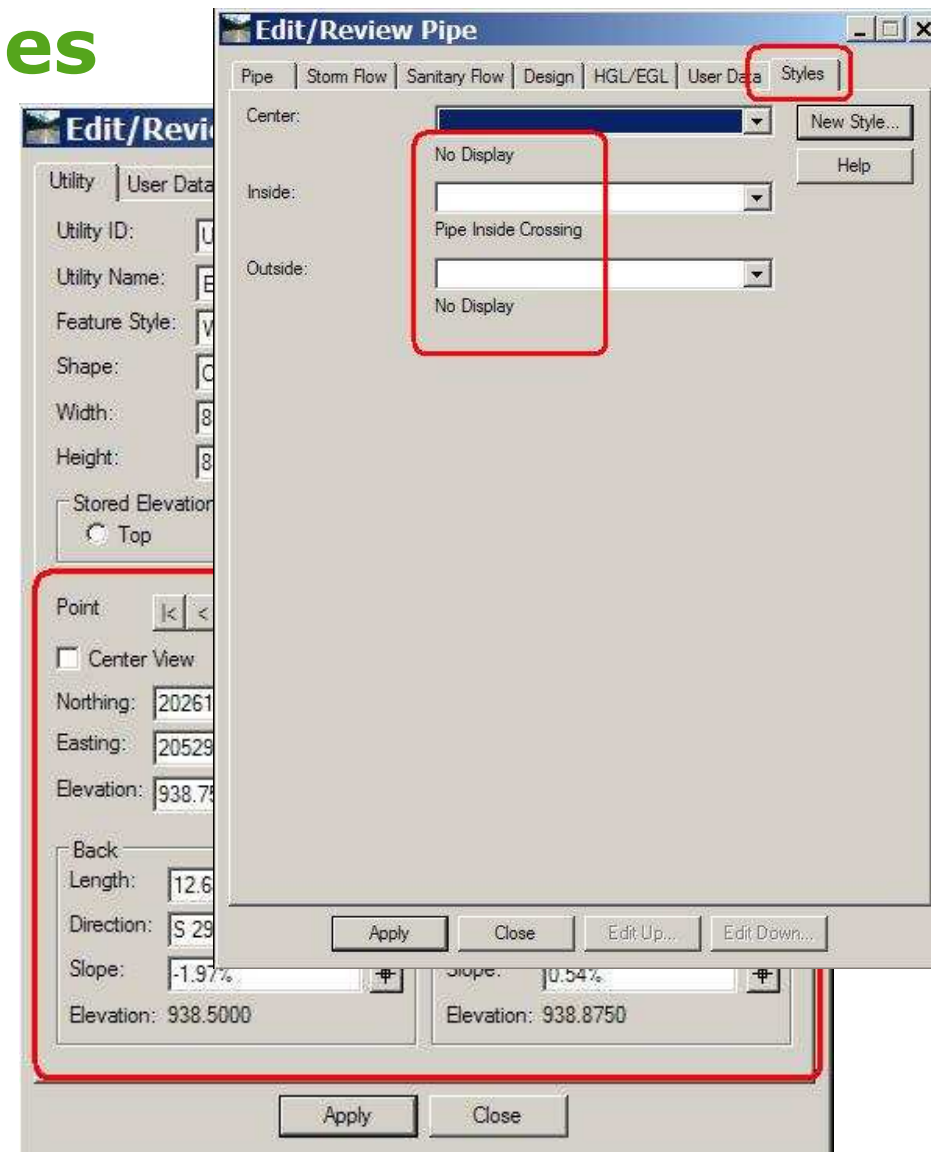
Date: Monday, October 20, 2008 10:54:44

Drainage Data File: Highway Alt 1

ID	PlanLength (ft)	Diameter (in)	Material	Station Up	Offset Up	Station Dn	Offset Dn
P1	61.03	24.00	Concrete	121+85.00	-25.00	122+20.00	25.00
P2	35.36	24.00	Concrete	122+20.00	25.00	121+85.00	30.00
P3	167.82	24.00	Concrete	143+33.19	-62.63	142+30.58	70.16
P4	10.54	12.00	RC C76-A	129+49.06	-9.77	129+59.65	-9.71
P5	68.85	24.00	RC C76-A	144+50.10	-22.17	143+81.25	-22.15
P8	22.09	12.00	RC C76-A	129+59.65	-9.71	129+59.48	12.39
P9	15.49	12.00	RC C76-A	129+59.65	-9.71	129+71.22	-20.11
P10	14.07	12.00	RC C76-A	129+59.65	-9.71	129+71.95	-2.81
P11	12.30	12.00	RC C76-A	129+59.65	-9.71	129+61.45	-21.88
P29	164.67	12.00	RC C76-A	146+05.78	44.08	144+40.10	48.26
P32	109.93	18.00	RC C76-A	147+56.36	-22.11	146+47.74	-39.03

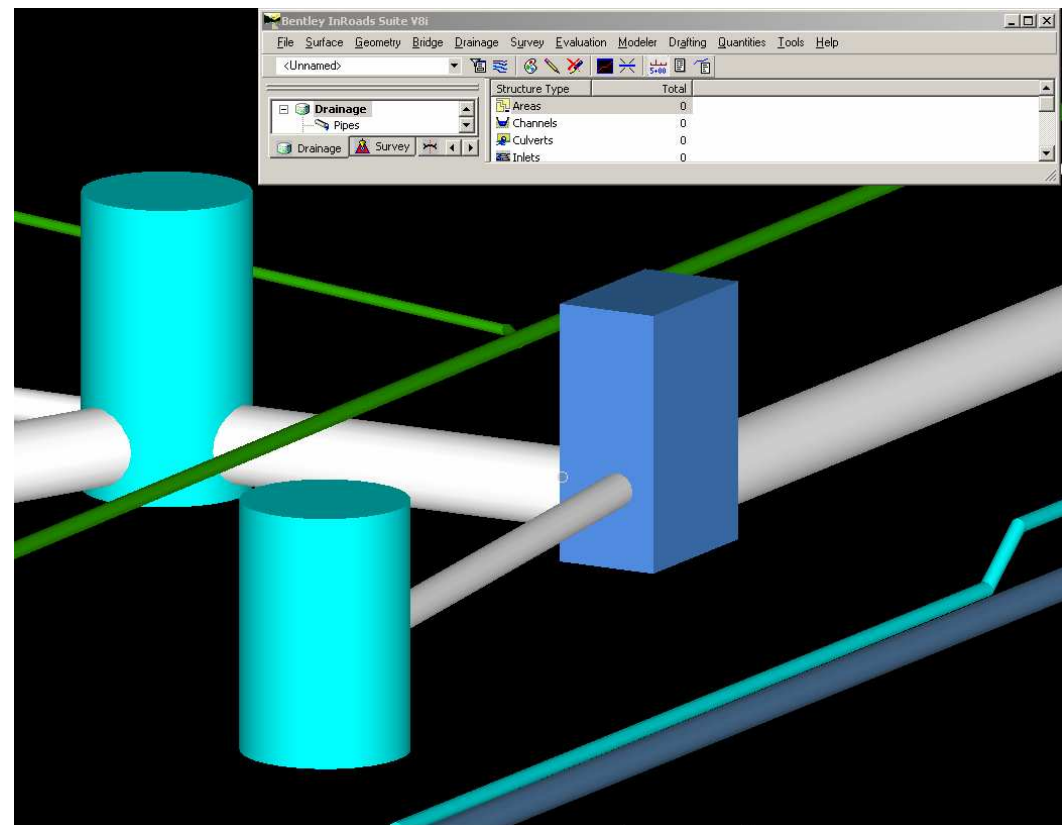
Drainage and Utilities

- Styles
 - Read only
 - Notes
- Edit/Review Utilities



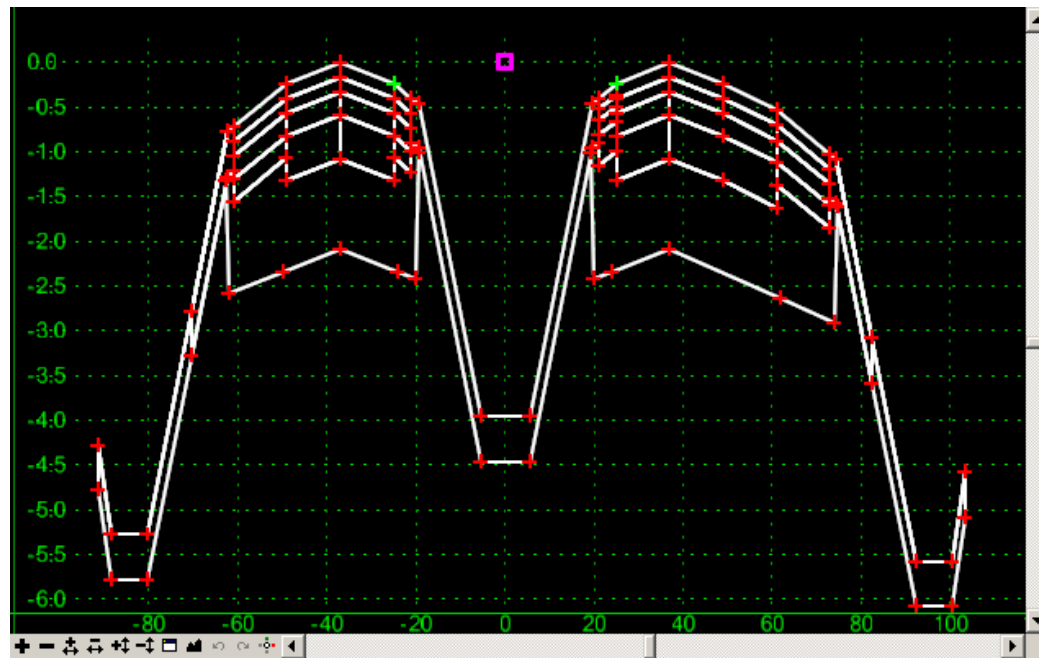
Drainage and Utilities

- View > Drainage As Solids
 - Performance



Create Template

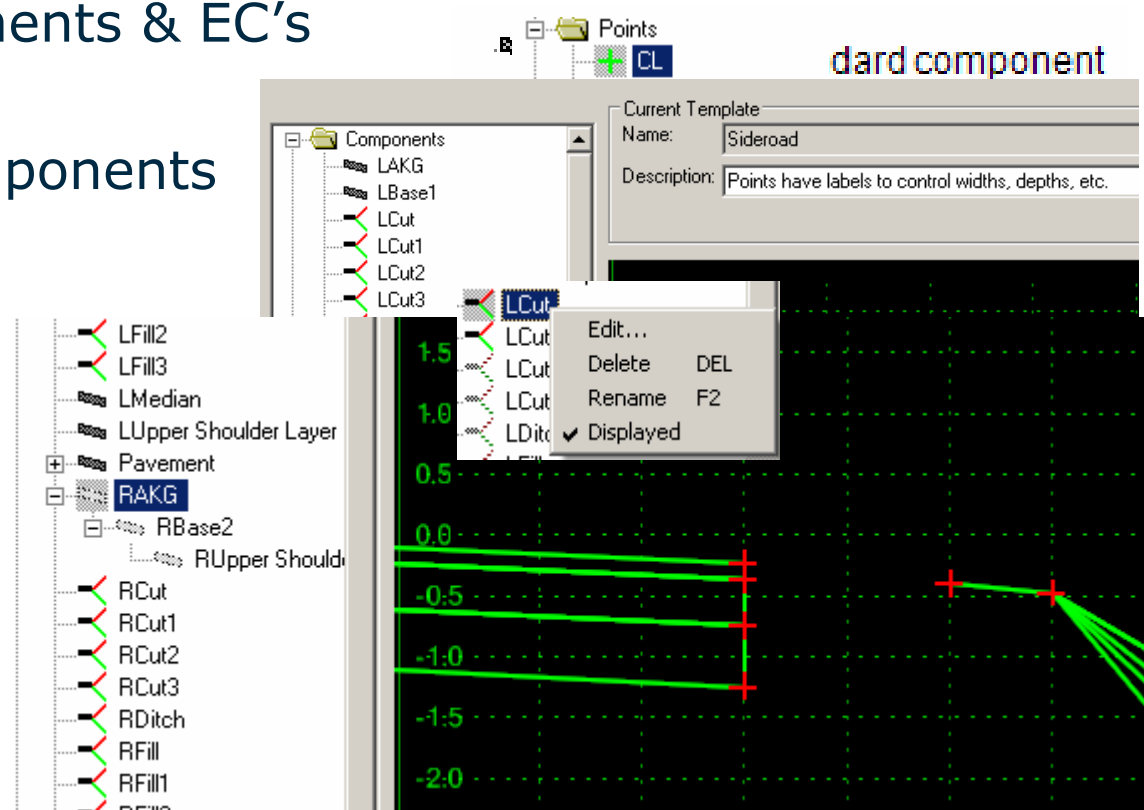
- Enhancements
 - "Athens" Focuses on Usability



.....Bottom Line

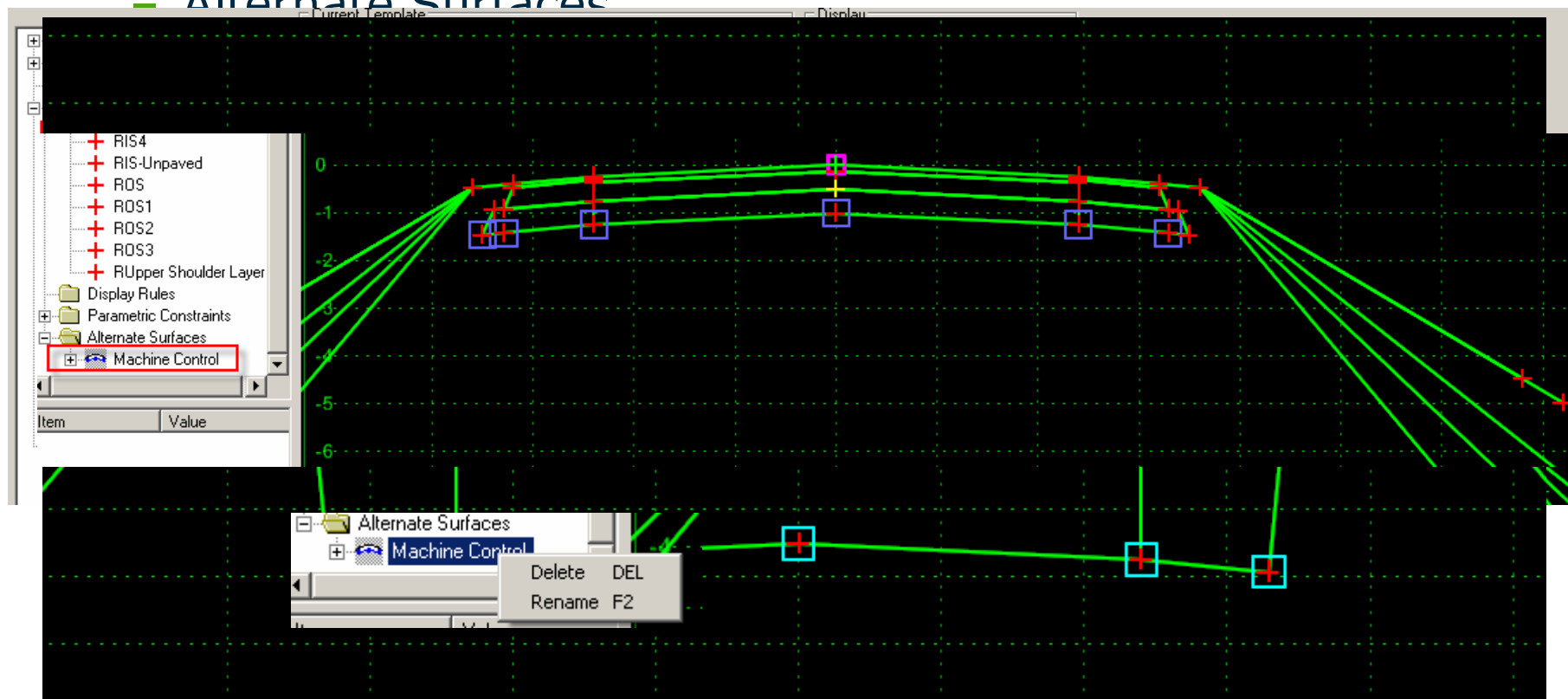
Create Template

- Create Template > Active Template
 - Icons for Components & EC's
 - Point Colors
 - Parent/Child Components
 - Display Controls



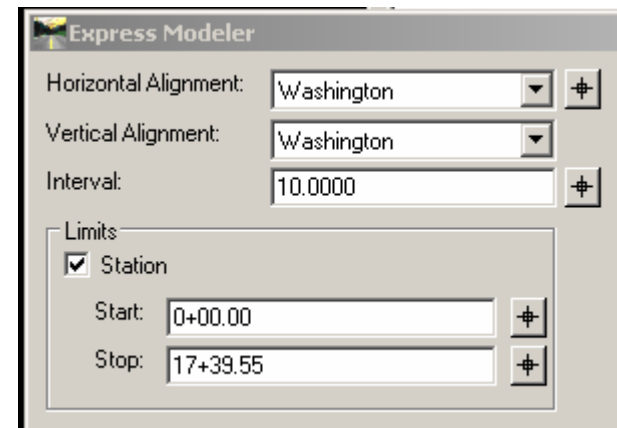
Create Template > Active Template

- Parametrics Constraints
- Alternate Surfaces



Express Modeler

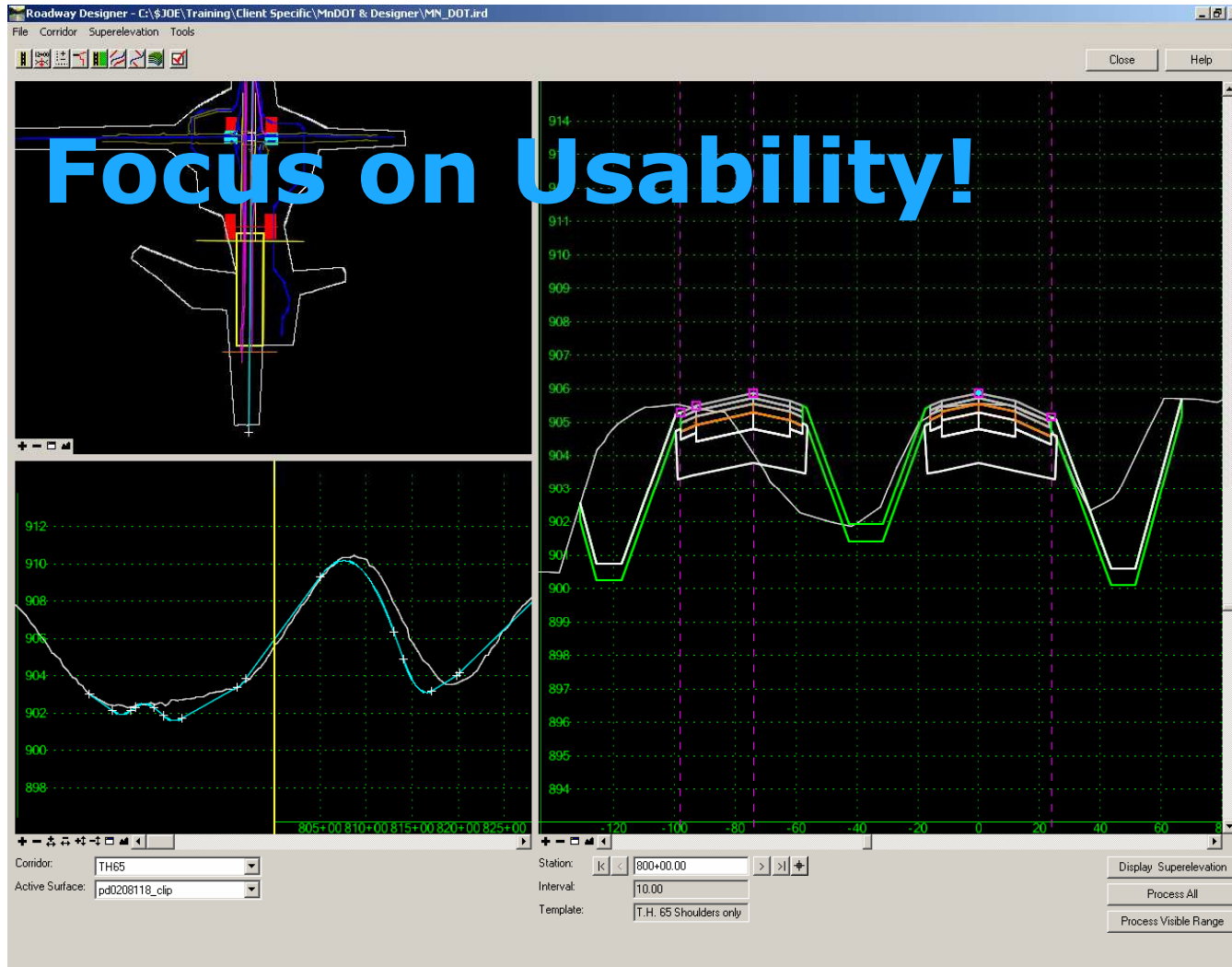
- Station Limits
 - InRoads Site Suite
 - InRoads
 - Access Roads
 - Driveways



The screenshot shows the 'Express Modeler' dialog box with the following settings:

- Horizontal Alignment: Washington
- Vertical Alignment: Washington
- Interval: 10.0000
- Limits:
 - Station
 - Start: 0+00.00
 - Stop: 17+39.55

Roadway Designer



Roadway Designer

- Set Corridor Active



Parametrics Constraints

The screenshot shows a software interface for managing parametric constraints. The dialog box, titled "Parametric Constraints", is overlaid on a road profile graph. The graph displays a cross-section of a road with various layers and elevations. The vertical axis represents elevation, ranging from 04.0 to 08.5. The horizontal axis represents stationing, with labels like 800+00.00 and 837+00.00.

The dialog box contains the following fields and controls:

- Corridor: TH65
- Constraint Label: wearing
- Start Value: -0.17
- Stop Value: -0.17
- Station Limits: Start: 800+00.00, Stop: 837+00.00
- Buttons: Add, Close, Change, Help, Export..., Import..., Delete
- Table: Override Values

Name	Start Value	Stop Value	Start Station	Stop Station
wearing	-0.17	-0.17	800+00.00	837+00.00

A red box highlights the "Export..." and "Import..." buttons. A red arrow points to a "Highlighted" label, which in turn points to a specific point on the road profile graph.

Point Control

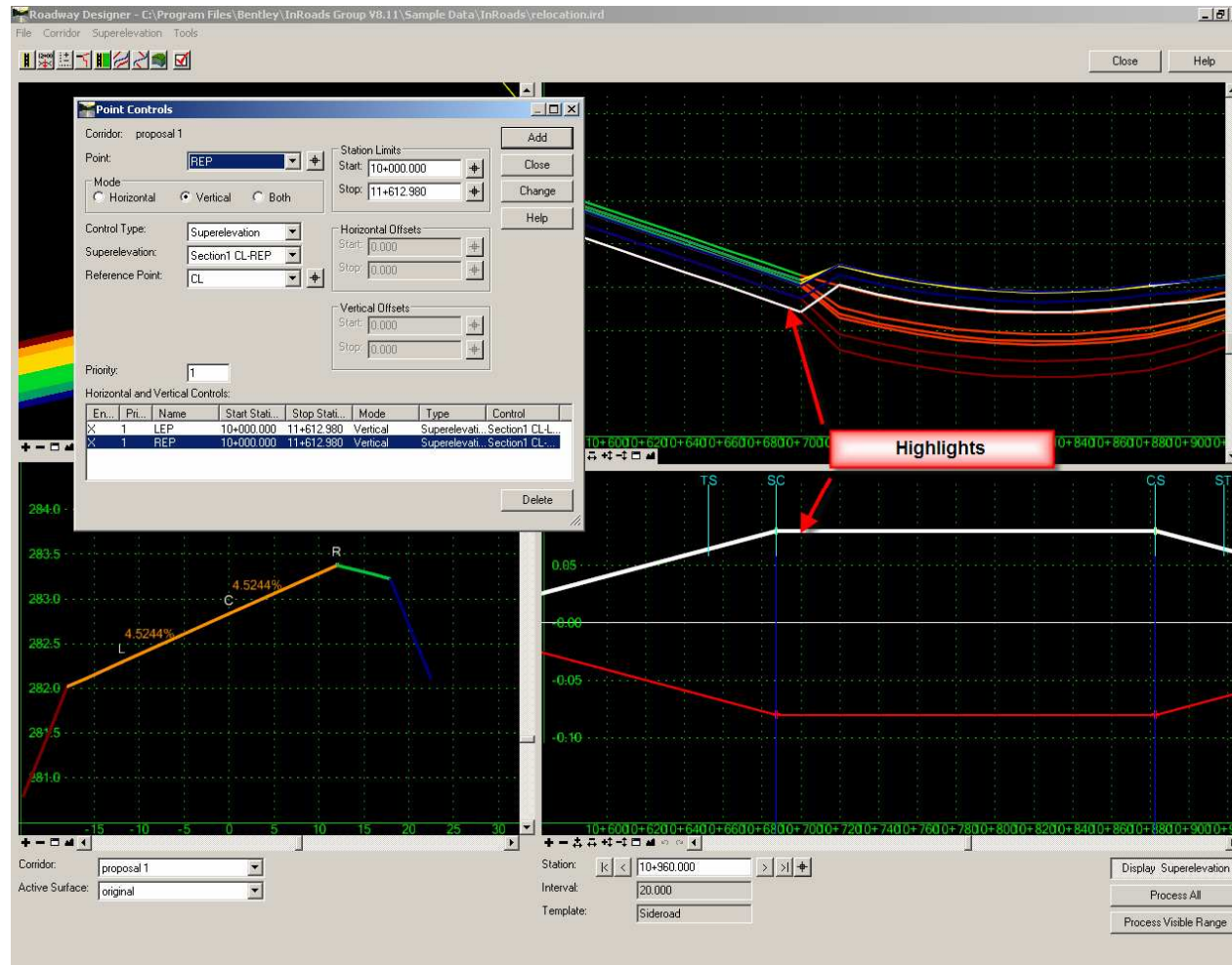
The screenshot displays the Bentley software interface for Point Control. The main window is divided into several panels:

- Top Left:** A plan view showing a road layout with a yellow highlighted section.
- Top Right:** A dialog box for editing a point. It includes fields for Point (LCL), Mode (Both), Control Type (Alignment), Horizontal Alignment (65SB), Vertical Alignment (65SB), Station Limits (Start: 780+00.00, Stop: 854+99.80), Horizontal Offsets (Start: 0.00, Stop: 0.00), Vertical Offsets (Start: 0.00, Stop: 0.00), and Priority (1). A table lists existing controls.
- Bottom Left:** A vertical profile graph showing elevation (900 to 910) versus stationing (805+00 to 810). A red arrow points to a specific point on the profile, labeled "Highlights".
- Bottom Right:** A cross-section profile graph showing elevation (902.5 to 905.5) versus stationing (-105 to -40). It shows multiple profiles for different lanes.

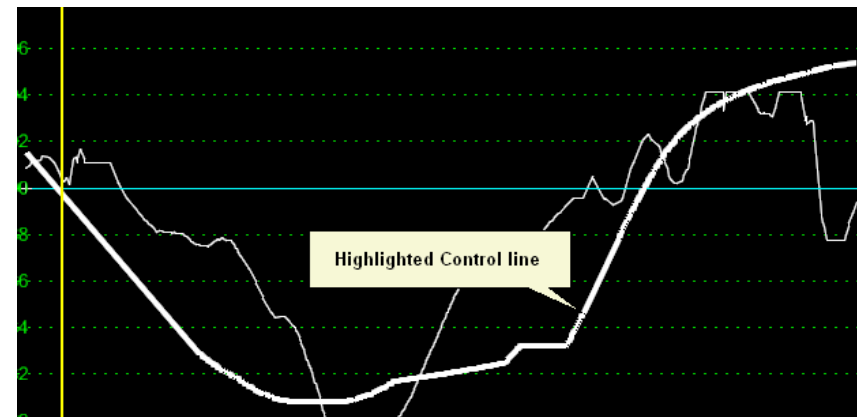
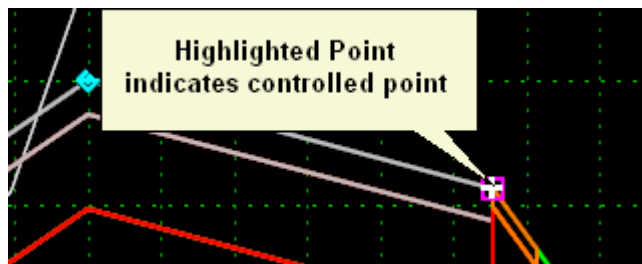
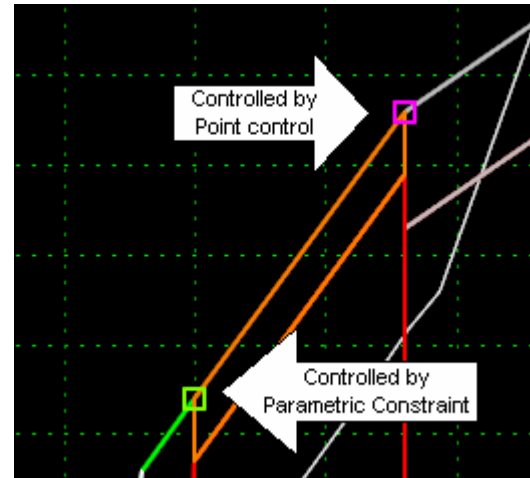
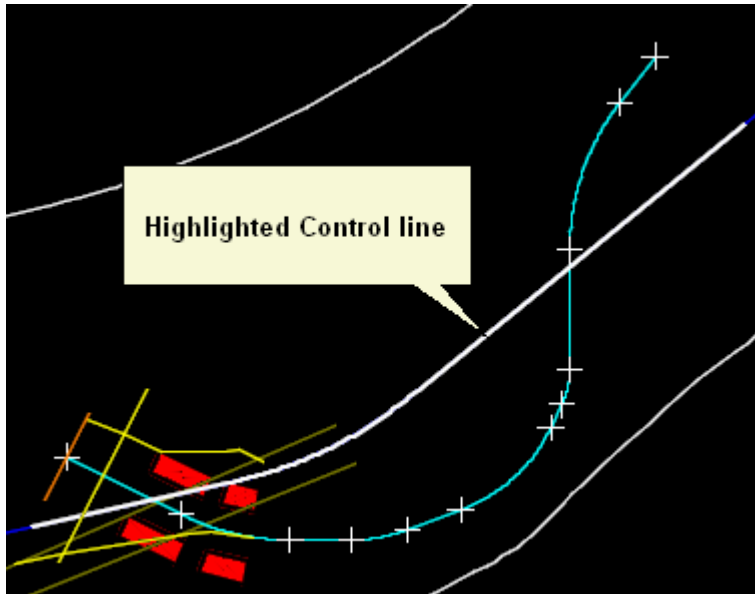
At the bottom of the interface, there are controls for Corridor (TH65), Active Surface (pd0208118_clip), Station (800+00.00), Interval (10.00), and Template (T.H. 65 Shoulders only). Buttons for "Display Superelevation", "Process All", and "Process Visible Range" are also present.

En...	Pri...	Name	Start Stati...	Stop Stati...	Mode	Type	Control
X	1	LCL	780+00.00	854+99.80	Both	Alignment	65SB;65SB
X	1	RCL	780+00.00	911+60.00	Both	Alignment	65NB;65NB
X	1	RDEP	801+04.74	806+59.64	Horizontal	Alignment	SER-RDEP

Display Superelevation



Point Control Recap



Template Transitions

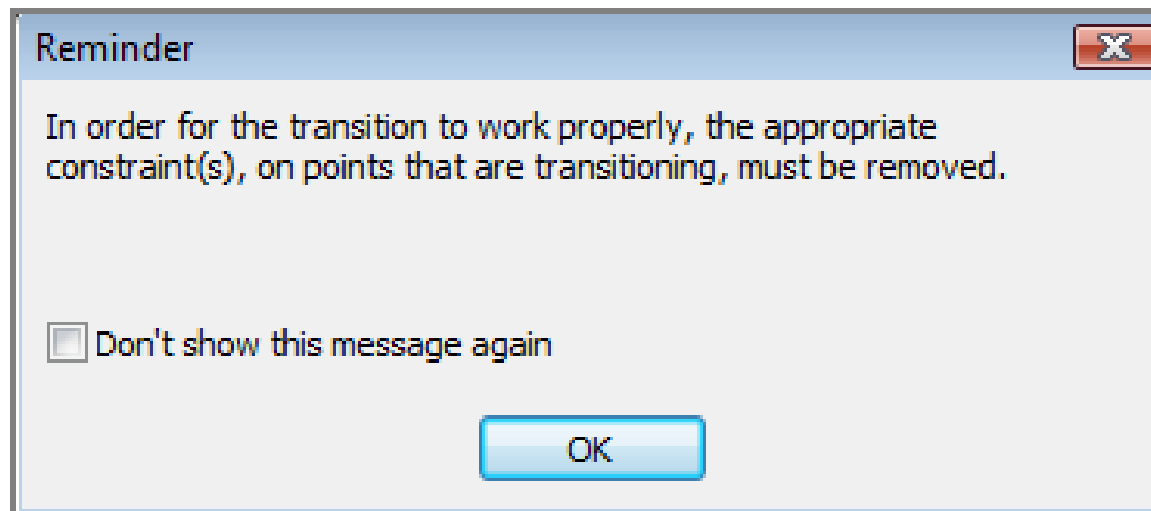
The screenshot displays the 'Template Drops' dialog box in a Bentley software environment. The background shows a road design plan view with various colored lines representing different road elements. A context menu is visible over the plan view, with 'Add Transition' selected. The dialog box has the following fields and controls:

- Corridor: JULYSS-North (dropdown menu)
- Station: 118+20.00 (text input with increment/decrement buttons)
- Interval: 10.00 (text input with increment/decrement buttons)
- Library Templates: A list box containing the path C:\\$JOE\Training\Client Specific\MnDOT & Designer\MN_DOT.itl
- Buttons: Add, Close, Change, Copy, Help
- Current Template Drops: A table with columns for Station, Interval, Template, Enable Transition, Revised In, and Library.
- Buttons: Synchronize with Library, Edit, Delete

Station	Interval	Template	Enable Transition	Revised In	Library
114+38.64	10.00	Ulysses St	N/A	ITL	C:\support logs\Derricke Gra...
116+00.00	10.00	Ulysses St		ITL	C:\\$JOE\Training\Client Spe...
124+00.00	10.00	Ulysses St		IRD	C:\support logs\Derricke Gra...
127+35.13	10.00	Ulysses St		IRD	C:\support logs\Derricke Gra...

Template Transitions

- Intelligent Transitions
 - Template Synch
 - Ability to Add Transitions to Copied Templates
 - Warning Dialog



Enhanced Super & Rollovers

- Instantaneous Shoulder Rollup Transition Option
 - Specified Length
 - Match Transition Slope
- Non-Linear Transition

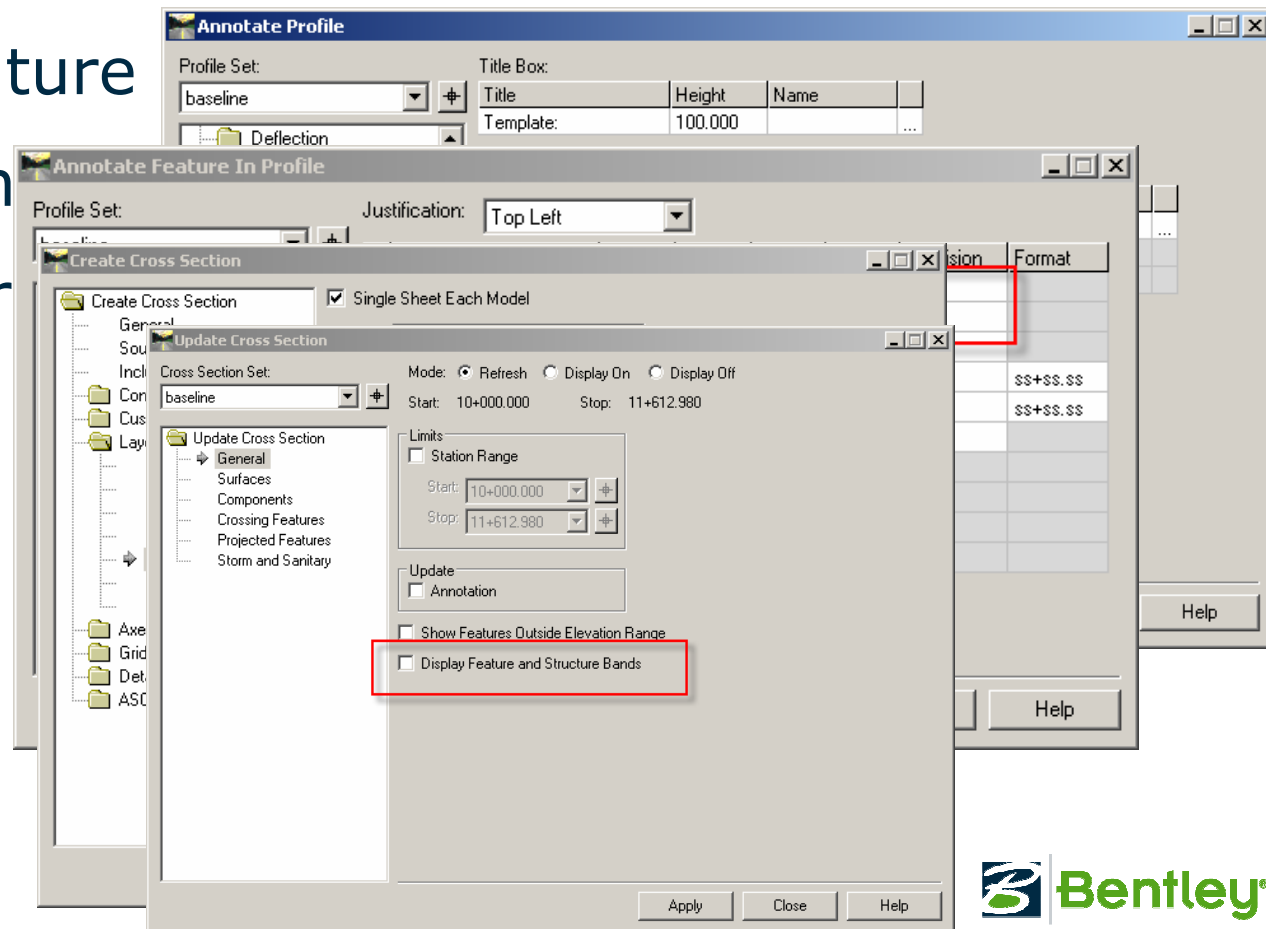
The image shows two overlapping dialog boxes from Bentley software. The background dialog is titled 'Superelevati...' and contains fields for Name, Station, Cross Slope, Type, Non-Linear Curve, Constraints, Type (with a dropdown set to 'Hori'), Parent 1 (with a dropdown set to 'Sec'), and Value (set to '0.00'). The foreground dialog is titled 'Apply Shoulder Rollover Lock' and contains the following settings:

- Shoulder Point: LGutter (dropdown menu)
- Control Line Name: LGutter (text field)
- High Side Difference: 0.000% (text field)
- Maximum Slope: 0.000% (checkbox and text field)
- Instantaneous Shoulder Rollup Transition Option:
 - Specified Length: 0.01 (radio button and text field)
 - Match Transition Slope (radio button)
- Low Side Difference: 0.000% (text field)
- Minimum Slope: 0.000% (checkbox and text field)
- Limits:
 - Station (checkbox)
 - Start: 100+00.00 (text field)
 - Stop: 116+12.98 (text field)

Buttons for Apply, Close, and Help are located on the right side of the 'Apply Shoulder Rollover Lock' dialog.

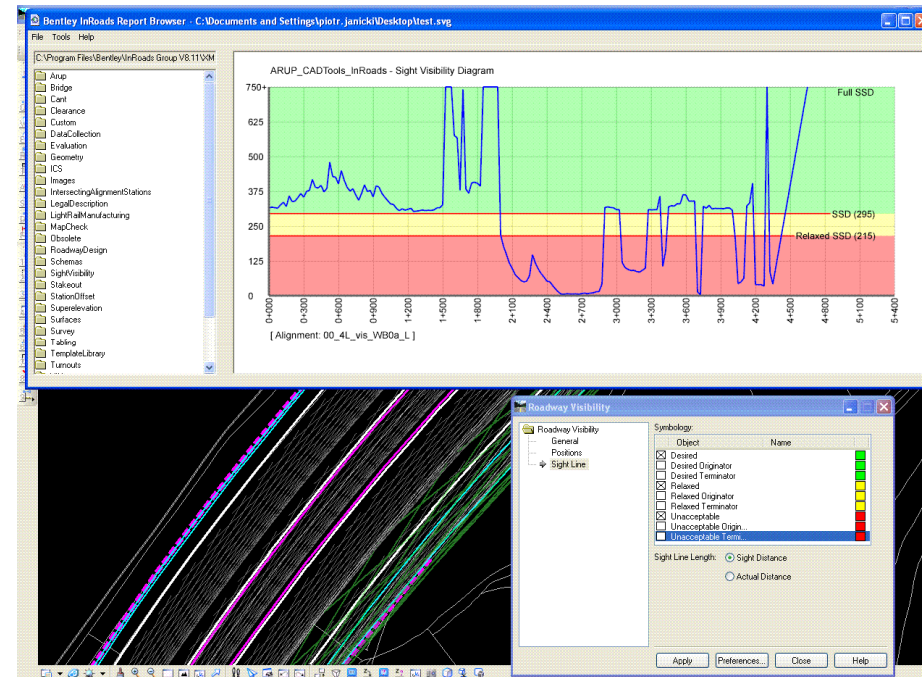
Evaluation Enhancements

- Annotate Profile > Template
- Annotate Feature
- Cross Section
- Feature & Structure



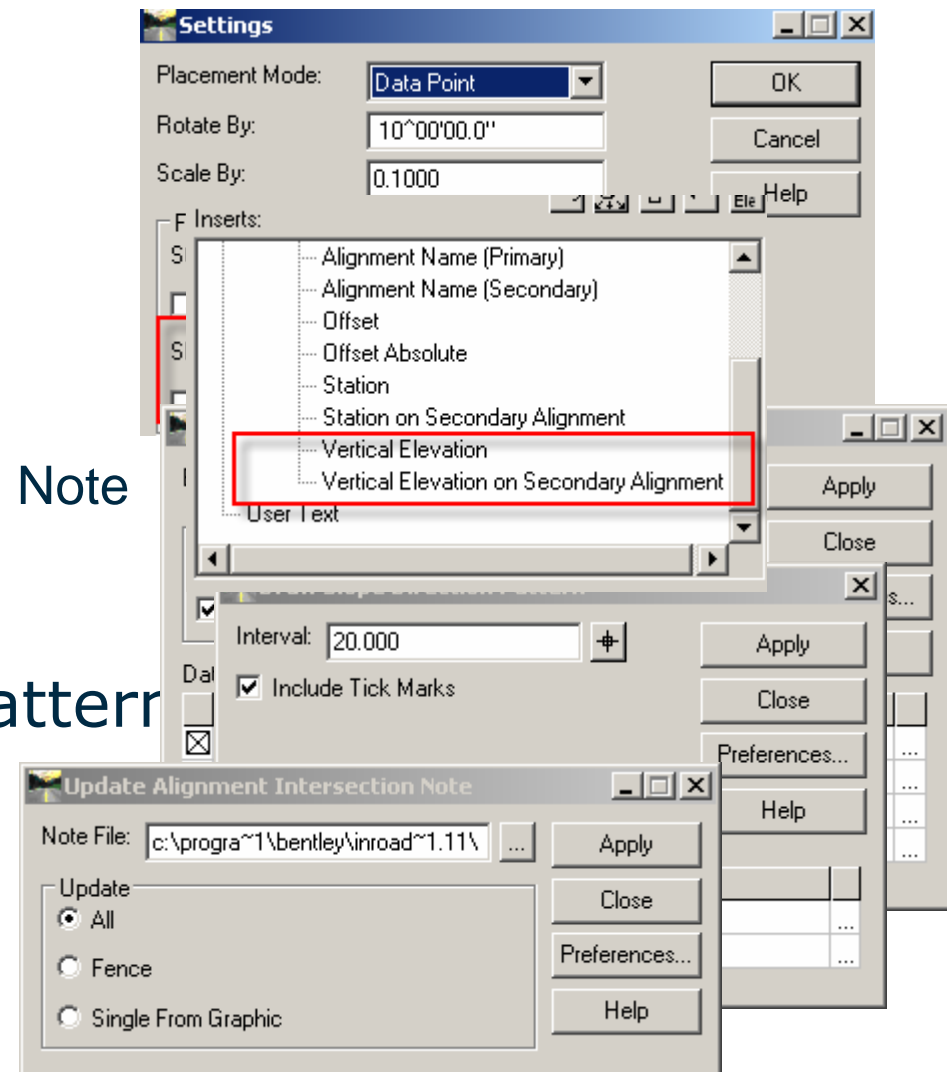
Evaluation Enhancements

- Triangle Volume > Surface Description
- Roadway Visibility
 - Report are XML
 - Pick Button for Horizontal



Drafting Notes

- Slope Format Support
- Vertical Alignment "z"
 - Plan Note
 - Place Alignment Intersection Note
- Place Coordinate Grid
- Draw Slope Direction Pattern
- Update Notes
 - Intersection Notes
 - Drainage Structure
 - Elements

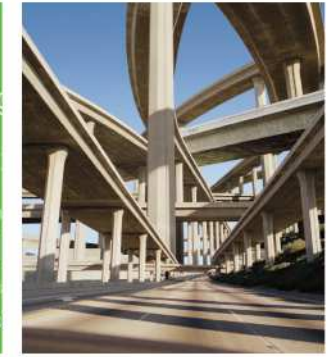


XML Reporting

- XML Reports Navigate
 - Appropriate Folder
 - Opens “Standard” XSL
- XML Precision Increased to 7 Digits
- Report Browser no longer Require PW Log
- XML Reports > Stakeout
 - Vertical Alignment Elevation Referenced
 - Station Limits Added

XML Reporting

- New XSL Delivered
 - TrimbleAlignmentDC.xsl
 - TrimbleStationOffsetDC.xsl
 - HorizontalAlignmentReviewStationOffset.xsl
 - Sight Visibility>
 - RoadwayVisibiltiy.xsl
 - RoadwayVisibilityASCII.xsl
 - RoadwayVisibilityGraphSVG.xsl
- Enhanced XSL
 - ErrorEllipse.xsl
 - LeastSquareAdjusted.xsl
 - VolumesWithReplacedAddedToNormaFill.xsl



Making IT Strategic to Your Business

Thank you